

NITRIDE SEMICONDUCTOR DEVICE WITH REDUCED POLARIZATION FIELDS

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5 ABSTRACT

10 A method for fabricating a light-emitting semiconductor device including a III-Nitride quantum well layer includes selecting a facet orientation of the quantum well layer to control a field strength of a piezoelectric field and/or a field strength of a spontaneous electric field in the quantum well layer, and growing the quantum well layer
15 with the selected facet orientation. The facet orientation may be selected to reduce the magnitude of a piezoelectric field and/or the magnitude of a spontaneous electric field, for example. The facet orientation may also be selected to control or reduce the magnitude of the combined piezoelectric and spontaneous electric field strength. As a result of the reduced magnitude of piezoelectric, spontaneous, or combined piezoelectric and spontaneous electric field strengths in their quantum well layers, light-emitting devices in accordance with the present invention may generate light with increased efficiency compared to prior art devices.